

What is claimed is:

1 1. A method for sending a data packet, the method comprising:
2 receiving an original data packet characterized by a fixed-length packet format
3 defining an address field and a data field, the original data packet carrying original data
4 packet routing information in the address field and original data packet data information
5 in the data field;

6 constructing a remnant packet characterized by the fixed-length packet format
7 including a remnant packet data field and a remnant packet address field by inserting at
8 least a portion of the original packet routing information in the remnant packet data field;
9 and

10 sending the remnant packet.

1 2. The method of claim 1, wherein constructing a first remnant packet further
2 comprises:

3 inserting a first portion of the original data packet data information in the remnant
4 packet data field.

1 3. The method of claim 2, further comprising:
2 when the original data packet and a prior original data packet form part of a
3 common message, inserting at least a portion of a prior original data packet data field in
4 the remnant packet data field.

1 4. The method of claim 1, further comprising constructing a subsequent
2 remnant packet characterized by the fixed-length packet format by inserting a second
3 portion of the first data information in the data field of the subsequent remnant packet.

1 5. The method of claim 4, further comprising:
2 receiving a subsequent original data packet characterized by the fixed-length
3 packet format, the subsequent original data packet carrying subsequent original data
4 packet routing information in the address field; and
5 inserting at least a portion of the subsequent original packet routing information in
6 the data field of the subsequent remnant packet.

1 6. The method of claim 1, wherein:
2 receiving an original data packet comprises receiving an original ATM cell
3 including a VCI; and
4 constructing a remnant packet further comprises inserting the VCI from the
5 original ATM cell in the data field of the remnant packet.

1 7. The method of claim 1, further comprising:
2 when the address field of the original data packet includes sufficient available
3 space for subsequent routing of the original data packet in an intermediate network,
4 sending the original data packet without constructing and sending the remnant packet.

1 8. The method of claim 1, further comprising setting a remnant packet flag in
2 the remnant packet.

1 9. A method for receiving a data packet comprising:
2 receiving a current remnant packet characterized by a fixed-length packet format
3 defining an address field and a data field, the current remnant packet carrying remnant
4 routing information in the address field and remnant data information in the data field;
5 and
6 building a reconstructed data packet characterized by the fixed-length packet
7 format by:
8 identifying original data packet routing information contained in the data field of
9 the current remnant packet; and
10 inserting the original data packet routing information in the address field of the
11 reconstructed data packet.

1 10. The method of claim 9, wherein building a reconstructed data packet
2 further comprises:
3 identifying original data packet data information contained in the data field of the
4 current remnant packet; and
5 inserting at least a first portion of the original data packet data information in the
6 data field of the reconstructed data packet.

1 11. The method of claim 10, further comprising storing at least a portion of
2 original data packet data information from a prior remnant packet in the data field of the
3 reconstructed data packet.

1 12. The method of claim 9, wherein building a reconstructed data packet
2 further comprises:

3 when the current remnant packet and a prior remnant packet form part of a
4 common message, storing at least a portion of prior remnant packet data information in
5 the data field of the reconstructed data packet.

1 13. The method of claim 12 further comprising comparing the remnant routing
2 information to stored packet routing information to determine when the prior remnant
3 packet and the current remnant packet form part of the common message.

1 14. The method of claim 11, further comprising:
2 receiving a subsequent remnant packet;
3 inserting a first portion of data information from the data field of the subsequent
4 remnant packet in the data field of the reconstructed data packet; and
5 constructing a second reconstructed data packet according to the fixed-length
6 packet format by:
7 identifying subsequent original data packet routing information contained in the
8 data field of the subsequent remnant packet;

9 inserting the subsequent original data packet routing information in the address
10 field of the second reconstructed data packet; and

11 inserting at least a second portion of data information from the data field of the
12 subsequent remnant packet in the data field of the second reconstructed data packet.

1 15. The method of claim 9, wherein receiving a first remnant packet
2 comprises:

3 receiving a data packet;

4 determining if the data packet is a remnant packet; and

5 when the data packet is not a remnant packet, sending the data packet without
6 building a reconstructed data packet.

1 16. The method of claim 9, wherein:

2 receiving a remnant packet comprises receiving a remnant ATM cell; and

3 constructing a reconstructed data packet comprises:

4 constructing a reconstructed ATM cell;

5 retrieving a VCI from the data field of the remnant ATM cell; and

6 inserting the VCI in the VCI field of the reconstructed ATM cell.

1 17. A communication network node comprising:

2 a receiver for receiving an original data packet characterized by a fixed-length
3 packet format defining an original address field and an original data field; and

4 a processor coupled to said receiver and operable to construct a remnant packet
5 according to the fixed-length packet format including a remnant address field and a
6 remnant data field, by moving at least a portion of the original address field into the
7 remnant data field.

1 18. The communication network node of claim 17, wherein the remnant data
2 field further includes a first portion of the original data field, and further comprising a
3 memory coupled to the processor for storing a second portion of the original data field.

1 19. The communication network node of claim 17, wherein the remnant data
2 field comprises at least a portion of a prior original data packet.

1 20. The communication network node of claim 17, wherein said fixed-length
2 packet format is ATM, and the remnant data field comprises at least a portion of a VCI
3 from the original data packet.

1 21. The communication network node of claim 17, wherein the processor is
2 operable to send the original data packet without first constructing a remnant packet
3 when the original address field includes sufficient available space for subsequent routing
4 in an intermediate network.

1 22. The communication network node of claim 17, wherein the remnant
2 packet comprises a remnant packet flag.

1 23. A communication network node comprising:
2 a receiver for receiving a remnant packet characterized by a fixed-length packet
3 format defining a remnant address field and a remnant data field, the remnant address
4 field comprising remnant packet routing information and the remnant data field
5 comprising original data packet routing information and original data packet data
6 information; and

7 a processor operable to form a reconstructed data packet characterized by the
8 fixed-length packet format including a reconstructed address field and a reconstructed
9 data field, the reconstructed address field comprising original packet routing information
10 from the remnant data field.

1 24. The communication network node of claim 23, wherein the reconstructed
2 data field comprises at least a portion of the original data packet data information.

1 25. The communication network node of claim 23, wherein the processor is
2 further operable to insert stored data information from a prior associated remnant packet
3 in the reconstructed data field.

1 26. The communication network node of claim 23, wherein said receiver
2 receives a subsequent remnant packet including a subsequent data field, and said

3 processor forms a subsequent reconstructed data packet according to the fixed-length
4 packet format, including a subsequent reconstructed data field comprising original data
5 packet data information from the remnant packet and at least a portion of the subsequent
6 data field.

1 27. The communication network node of claim 23, wherein the processor is
2 further operable to send the received data packet without constructing a reconstruction
3 data packet when the received data packet is not a remnant packet.

1 28. The communication network node of claim 23 wherein said remnant
2 packet is an ATM cell, and said reconstructed data packet is an ATM cell comprising a
3 VCI field including VCI information from the remnant data field..